



## European GEMAS mapping of agricultural soils: Arsenic results

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The GEMAS data set provides a homogenised overview of arsenic distribution in agricultural (Ap horizon, 0–20 cm) and grazing land soil (Gr, 0–10 cm) of Europe. The GEMAS mapping project covers western Europe at a sample density of 1 site/2500 km<sup>2</sup>. Arsenic concentrations are reported for the <2 mm fraction of ca. 2200 soil samples. Median As concentrations in an aqua regia extraction determined by inductively coupled plasma emission mass spectrometer (ICP-MS) were 5.7 mg/kg for the Ap samples and 5.8 mg/kg for the Gr samples.

The dominant feature in both agricultural soil maps (Ap) and grazing land soil maps (Gr) is the southern margin of the former glacial cover seen in the form of a sharp boundary between northern and southern European As concentrations. As concentrations tend to be generally higher in the agricultural soils of southern Europe. Thus, it is not possible to define one soil background level for As that is valid for the whole Europe.

Most of the As anomalies on the maps can be directly linked to geology (ore occurrences, As-rich rock types). Because most of the known mineral deposits have been mined, local industrial sources often developed in the same areas and some anthropogenic anomalies can coincide with the geological ones. More detailed scale geochemical mapping is needed to reveal the difference between geogenic and anthropogenic anomalies. Only a very few anomalies could be explained by other human activities such as urbanisation, agricultural practices, application of CCA-preserved wood or energy production.